

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Application of	)	
	)	Group Art Unit 3635
Robert T. Long	)	
	)	
Serial No. 10/033,216	)	Examiner: B. Katcheves
Filed: December 26, 2001	)	Appeal No.:
For: Wide-Body Connector for Concrete	)	
Sandwich Wall	)	

**APPEAL BRIEF**

This is an appeal from the final rejection of the Examiner dated July 11, 2008 rejecting claims 25-38, all of the claims pending in the case. This Brief is accompanied by the requisite fee set forth in Rule 1.17(f).

**Real Party in Interest**

Composite Technologies Corporation is the assignee of patent application number 10/033,216.

**Related Appeals and Interferences**

There are no other appeals or interferences known to Appellant, the Appellant's legal representative, or assignee which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**Status of Claims**

The application was filed December 26, 2001. Claims 25-38 have been presented in the application. Claims 25-38 have been rejected and are pending in this application. Appellant is appealing the rejections of claims 25-38. Claims 1-24 have been cancelled.

### **Status of Amendments**

An amendment was filed on September 11, 2008, prior to filing the Notice of Appeal. The amendment added one new claim (claim 39) and argued against the rejection of claims 25-38. On October 24, 2008, the Examiner mailed an Advisory Action indicating that the amendment would not be entered. Thus, the currently pending and rejected claims that are the subject matter of the appeal are claims 25-38.

### **Summary of Claimed Subject Matter**

The connectors of the present invention are formed of a thermally insulative material, such as fiber reinforced polymer, and are intended for use in a concrete sandwich wall having spaced apart layers of concrete with an insulation layers sandwiched therebetween. Each connector includes an elongated body that extends through the insulation layer and opposite ends that extend into the respective concrete layers. Anchoring surfaces are provided in the opposite ends to facilitate anchorage of the connector in the concrete and to develop end moments to assist in the transfer of shear between the layers of concrete. The connectors are not attached to or functionally associated with reinforcing members or elongated strands that may be present in the concrete layers.

The body includes longitudinally extending thickened portions that define longitudinally extending flanges that are interconnected by a central web. The flanges and web provide bending stiffness for the connector and enhance shear transfer between the concrete layers. Each connector may include a lip extending partially or fully around the body so as to limit penetration of the connector through the insulation layer.

The following outlines where each element of the independent claims can be found in the specification:

25. A wall panel comprising:
- (a) spaced apart first (14) and second (16) concrete layers (pg. 6, lines 20-21; Fig. 2);
  - (b) an insulation layer (18) between the concrete layers (pg. 6, lines 20-21; Fig. 2);
  - (c) a plurality of elongated connectors (10) (Figs. 1-8) having a body (20) (pg. 6, line 24) extending through the insulation layer and having opposite ends (22, 24) embedded in the concrete layers (pg. 7, lines 20-24), such that each end is surrounded by concrete (pg. 7, lines 20-24), wherein the body has elongated portions (26) longitudinally extending for the length of the body (pg. 6, lines 26-28), wherein the longitudinally extending portions are laterally spaced apart (Fig. 1) and connected by an internal web of thinner or equal thickness running the length of the body (28) (Fig. 1; pg. 6, line 28); and
  - (d) each connector having first and second anchorage surfaces (36) adjacent to each end (pg. 7, lines 6-7) of the connector capable of transferring tension and compression forces along and parallel to the longitudinally extended portions.

29. A connector (10) (Figs. 1-8) for an insulated concrete wall comprising an elongated wide-body (20) (pg. 6, line 24) having longitudinally extending portions running the length of the connector between opposite ends (26) (pg. 6, lines 26-28), spaced apart and connected by an internal web of thinner or equal thickness (28) (Fig. 1; pg. 6, lines 28) and running the length of the connector between opposite ends.

37. A wall panel comprising:

- (a) spaced apart first and second concrete layers (14, 16) (pg. 6, lines 20-21, Fig. 2);

(b) an insulation layer (18) between the concrete layers (pg. 6, lines 20-21; Fig. 2);  
(c) a plurality of elongated connectors (10) (Figs. 1-3) extending through the insulation layer and having opposite ends (22, 24) entirely embedded in the concrete layers (pg. 7, lines 20-24), wherein each connector has parallel longitudinally (26) (pg. 6, lines 26-28) extending portions between opposite ends of the connector, laterally spaced apart (Fig. 1) and connected by an internal web (28) of thinner or equal thickness extending between opposite ends of the connector (Fig. 1; pg. 6, lines 28); and  
(d) each connector having first and second anchorage surfaces (36) (pg. 7, lines 6-7) capable of transferring tension and compression forces along and parallel to the longitudinally extended portions.

38. (Previously presented) A wall panel comprising:

(a) spaced apart first and second concrete layers (14, 16) (pg. 6, lines 20-21; Fig 2);  
(b) an insulation layer (18) between the concrete layers (pg. 6, lines 20-21; Fig. 2);  
(c) a plurality of elongated connectors (10) (Figs. 1-3) extending through the insulation layer and having opposite ends (22, 24) embedded in the concrete layers (pg. 7, lines 20-24), wherein each connector has longitudinally extending portions (26) (pg. 6, lines 26-28) running the length of the connector, laterally spaced apart, arranged side by side and connected by an internal web of thinner or equal thickness (28) (Fig. 1; pg. 6, lines 28), wherein extends between opposite ends of the connector; and  
(d) each connector having first and second anchorage surfaces (36) (pg. 7, lines 6-7) capable of transferring tension and compression forces along and parallel to the longitudinally extended portions.

### **Grounds of Rejection to be Reviewed on Appeal**

Claims 25-28 and 37 have been rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 6,138,981 to Keith.

Claims 29-34, 36 and 38 have been rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 6,138,981 to Keith.

Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,138,981 to Keith.

### **Argument**

In general, the office actions issued citing the 6,138,981 patent to Keith as prior art have contained errors, omissions and generalities that make it very difficult for Applicant to provide a focused response. On two occasions (Applicant's responses dated March 20, 2008 and September 11, 2008), Applicant has requested clarification regarding where the examiner has found certain claimed elements in the prior art. The subsequent actions of the examiner do not provide any such clarification. Section 132 of the Patent Act requires an Examiner to provide a rejection that allows an applicant to recognize the grounds for rejection and be able to seek to counter any such rejections, which has not been the case in this application. See Chester v. Miller, 906 F.2d 1574, 1578 (Fed. Cir. 1990)

The mistakes, generalities, and omissions are described in detail in the arguments below. As noted below, Applicant has attempted to interpret the Examiner's rejections or explain what Applicant believes the Examiner actually meant, and then rebut these rejections.

1. Rejection of Claims 25-28 and 37 under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 6,138,981 to Keith.

In regard to independent claims 25 and 37, Applicant asserts that the Keith connector does not contain (1) a body with elongated portions longitudinally extending for the length of the body (2) longitudinal portions connected by an internal web, or (3) first and second anchorage surfaces. Because the cited patent does not describe every element of the claims, it does not anticipate Applicant's invention.

#### Longitudinally Extending Portions

The examiner indicates that all of the claimed elements are found in the Keith connectors 106<sup>1</sup>. Specifically, the examiner finds the claimed elongated, longitudinally extending portions of the body in Fig. 3 of Keith: "Fig. 3: see front and back longitudinal sides which are perpendicular to upper web 92 and bottom web 22." Applicant is particularly confused by this statement and not only because numeral 92 is used to denote the entire connector (not a web) (see Keith, col. 14, lines 49-50) and there is no mention of a web in this particular connector. Even more confusing, element 22 does not appear in Fig. 3, and is used to describe a component of an entirely different Keith connector (Keith connector 10, the subject of the Keith patent). This is the primary example of the Applicant's problems with the clarity of the office action. While Applicant asserts that connector 92 does not have the claimed longitudinal portions, Applicant cannot determine how to rebut a rejection that doesn't clearly point out where the Examiner finds these claimed elements and even uses numerical indicators that do not refer at all to the connector the Examiner is citing. Applicant contends that the examiner has not met the burden of articulating where the elements are actually found in Keith.

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<sup>1</sup> It is very difficult to determine which portions of the Keith connector correspond to the elements of Applicant's invention. Numeral 106 of Keith references the pointed end of the connector 92. Numeral 106 is not a connector. Applicant will assume for the sake of argument that the connector in which the examiner has found all of the elements is connector 92.

For purposes of this brief and for the sake of time efficiency, Applicant will assume that the examiner means that the side of connector 92 coming out of the paper (front face) is one longitudinal side, and the second longitudinal side is the side of connector 92 on the back (back face) (not visible in Fig. 3). Applicant strongly disagrees that these faces are the longitudinally extending, elongated portions as claimed. The Keith connector does not anticipate Applicant's claimed invention. As shown in Applicant's figures, the longitudinal elements lay side-by-side on one face of the connector. The claim language requires this side-by-side arrangement: "the longitudinally extending portions are laterally spaced." The Keith connectors have a front face and a back face, which are not the same as the longitudinal elements positioned laterally as claimed by Applicant. Because the Keith connectors 92 do not have these elements, the Keith connectors 92 cannot anticipate Applicant's invention.

#### Web

The examiner finds the web as element 92 of Keith. Again, element 92 is the entire connector in Fig. 3 of Keith. Applicant will assume that the examiner is referring to the indented portion of connector 92 that appears on the right end of connector 92 in Fig. 3. This "web" is not assigned a number in the Keith patent. Applicant's claims require the web to run the length of the body. This area of the Keith connector 92 that is identified as a "web" by the examiner does not meet this claim element. This "web", as identified by the examiner, runs only a short portion at the right end of the connector 92. Thus, this claim element is not found in Keith and Keith does not anticipate the claimed invention.

#### Anchorage Surfaces

In addition, the Keith connector does not have the anchorage surfaces that are claimed. The anchor surfaces shown in the Applicant's figures are "notches" appearing in various forms

adjacent to the ends of the connectors. They are additional components of the body of the connector. These surfaces are embedded in the concrete (see Fig. 2; pg. 7, lines 6-7: the anchoring surfaces “enhance retention of the connector in the concrete layers”). There are no such surfaces shown in Keith. The examiner merely cites to the connectors ends, but there are no anchoring surfaces provided adjacent to the ends of the Keith connectors. In addition, Applicant has claimed anchorage surfaces, adjacent to the ends of the connectors. The examiner states that the Keith connector has anchorage ends (which aren’t claimed by Applicant) and points to the ends of the Keith connectors. Applicant’s surfaces are adjacent to the ends, and the examiner has not pointed to any such surfaces located adjacent to the ends in Keith.

Further, Applicant claims anchorage surfaces that are capable of transferring tension and compression forces along and parallel to the longitudinally extending portions. There is no support in Keith that these Keith “ends” are capable of transferring tension, etc., especially in light of the fact that there are no anchoring surfaces shown in Keith that could perform this function.

Regarding claim 26, the examiner simply states that Keith discloses the wall as being composite, and the inherent ability of the connector to transfer forces. As Applicant has repeatedly argued in its office action responses, one of skill in the art recognizes a difference in structurally composite (as claimed and described in Applicant’s invention) and composite. Structurally composite walls have layers wherein the tension, compression and shear forces transfer or share loads between the two layers of concrete, and the layers act together as one layer in resisting loads. This function is described in Applicant’s specification:

In use, the increased bending stiffness provided by the longitudinally extending flanges 26 allows the web 28 to provide enhanced shear transfer between the concrete layers 14, 16. Additionally, the anchoring surfaces 36 prevent or limit twisting of



the end portions of the connectors 10 in the concrete layers 14, 16, thus permitting the development of end moments, either positive or negative, on the ends of the connectors 10. The connectors 10, accordingly, are effective at transferring shear between the concrete layers 14, 16 and so **add to the composite characteristics of the concrete wall panel 12.**

This language in the specification clearly indicates that “composite” as used by Applicant, does not mean multiple materials. Instead, Applicant’s “composite” means the tension, compression and shear forces are transferred or shared between the two layers of concrete, and the layers act together as one layer in resisting loads.

Composite walls, as described in Keith are composite in the sense that they are composed of multiple materials. (Keith, col. 1, line 20-27) Applicant’s connector functions to create a structurally composite wall. There is no indication that connector 92 of Keith has any functional effect on the Keith wall whatsoever; connector 92 of Keith is only described in one paragraph of the patent, beginning at col. 14, line 59. These connectors function to tie the completed wall together and prevent the forms from collapsing inwardly. There is absolutely no indication that these connectors result in a structurally composite wall.

The fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic. See MPEP Section 2112; In re Rickaert, 9 F.3d 1531, 1534 (Fed. Cir. 1993). The examiner must provide a basis in fact or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art. Ex parte Levy, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990). In this case, there is absolutely no indication that the wall described in Keith is structurally composite. Even if there were indication that the wall was composite as claimed, there is not indication that the Keith connector 92 performed that

claimed function, as there is little detail regarding connector 92 in the patent and there are other connectors (10) that comprise the subject matter of Keith.

Further, the title of the Keith patent is "Insulating Connectors used to Retain Forms During the Manufacture of Composite Wall Structures." This clearly states that the connector described in the Keith patent is simply for retaining (holding) the forms together during the manufacture process to keep them in place. One of ordinary skill in the art would recognize that the Keith connectors are required until the concrete has hardened and then can be removed, if possible, which is not what happens with Applicant's load-transferring connectors that always remain in place.

Regarding claim 27, the examiner contends that the Keith connector includes a lip as claimed, referring to the unlabeled component of connector 92 at the meeting point of the concrete layers and the insulation layers. Applicant has claimed a premolded lip. The specification describes the lip as "overmolded" (pg. 7, line 3). Premolded and overmolded used interchangeably here. Applicant's lip is integral, premolded with the body; it cannot be removed. The Keith lip has to be removed, as the circumference of the hole in the insulation layer is only as large as the connector; the lips of Keith would not fit through the hole and thus have to be removed when the connector is inserted. The lip cannot be integral and premolded as in Applicant's invention. There is no disclosure of such a premolded, integral lip in Keith.

For the foregoing reasons, none of the claims of Applicant's invention are anticipated by the Keith connector 92.

2. Rejection of Claims 29-34, 36 and 38 under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 6,138,981 to Keith.

In the rejection of claims 29, 30, 34 and 38, the examiner seems to be analyzing the other type of connector in Keith (shown in Fig. 1D and connector 10 in Fig. 3). Again, Applicant has difficulty determining where the longitudinally extending portions of this Keith connector are, but assuming that the flat top of the connector is one portion and the flat bottom is the second portion, The flat top and flat bottom are not longitudinally extending portions, nor are they spaced apart as claimed and as shown in the Figures. Further, there is no internal web, and clearly no web that runs the length of the connector. The web 18 is not internal and it does not connect the longitudinal portions. The web 18 appears as notches and do not extend the length of the connector. Thus, the Keith connector does not anticipate the claimed invention.

Further, the Keith connector 10 does not have the anchoring surfaces that are claimed in claim 30. Again, the examiner refers to anchor “ends”, which is not the language used in the claim. The claims recites anchoring “surfaces” that are adjacent to the ends, which is something more than just the ends of the connector. Further, the ends of the connectors 10 extend through the forms, outside of the concrete and thus do not “enhance retention of the connector in the concrete layers,” as the ends of the connectors 10 reside outside of the concrete.

Regarding 32, Applicant again asserts that the Keith connector does not have a premolded, integral lip. This is especially true of connector 10 which could not be inserted with the lip in place because the connector 10 extends through the forms.

With respect to claim 36, the second connector in Keith shown in Fig. 1D does not have the claimed anchoring surfaces. Specifically, the examiner indicates that the anchoring surfaces of Keith in Fig. 1D as labeled 53 correspond to the anchoring surfaces of Applicant’s invention. Again, these are not anchoring surfaces. As described above, Applicant’s anchoring surfaces reside in the concrete to enhance retention of the connectors in the concrete layers. Notches 53

of Keith do not reside in the concrete layer; as described in col. 11, lines 62-65, notches 53 are at a position that corresponds to the inner surfaces of the forms 82a and 82b. These notches are in correspondence with the forms, not residing within the concrete. Further, the examiner indicates that element 26 is an anchoring surface. Element 26 is a completely separate component than the connector, not a "surface" and is defined as a "pin" (Keith patent, Col 11, ln. 6). The claimed elements are not found in the combination of connectors and this rejection should be reversed. Additionally, element 26 attaches to connector 10 completely outside of the concrete (and the forms) (see Fig. 3; holes are outside of the forms), so element 26 does not act as an anchoring surface inside of the concrete.

3. Rejection of Claim 35 under 35 U.S.C. 103 as being unpatentable over U.S. Patent No. 6,138,981 to Keith.

The examiner combines the two connectors (10, 92) of Keith in this obviousness rejection to indicate that the combined connectors show all the elements claimed, including anchoring surfaces formed transversely across the longitudinal portions. Specifically, the examiner indicates that the anchoring surfaces of Keith in Fig. 1D as labeled 53 correspond to the anchoring surfaces of Applicant's invention. Again, these are not anchoring surfaces. As described above, Applicant's anchoring surfaces reside in the concrete to enhance retention of the connectors in the concrete layers. Notches 53 of Keith do not reside in the concrete layer; as described in col. 11, lines 62-65, notches 53 are at a position that corresponds to the inner surfaces of the forms 82a and 82b. These notches are in correspondence with the forms, not residing within the concrete. Further, the examiner indicates that element 26 is an anchoring surface. Element 26 is a completely separate component than the connector, not a "surface" and is defined as a "pin" (Keith patent, Col 11, Ln. 6). Additionally, element 26 attaches to

connector 10 completely outside of the concrete (and the forms) (see Fig. 3; holes are outside of the forms), so element 26 does not act as an anchoring surface inside of the concrete.

The claimed elements are not found in the combination of connectors and this rejection should be reversed.

Appellant respectfully requests that the Board grant the claims as provided in the Appendix.

Respectfully submitted,

Date: \_\_\_\_\_

9/10/09



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### **Claims Appendix**

25. A wall panel comprising:
- (e) spaced apart first and second concrete layers;
  - (f) an insulation layer between the concrete layers;
  - (g) a plurality of elongated connectors having a body extending through the insulation layer and having opposite ends embedded in the concrete layers, such that each end is surrounded by concrete, wherein the body has elongated portions longitudinally extending for the length of the body, wherein the longitudinally extending portions are laterally spaced apart and connected by an internal web of thinner or equal thickness running the length of the body; and
  - (h) each connector having first and second anchorage surfaces adjacent to each end of the connector capable of transferring tension and compression forces along and parallel to the longitudinally extended portions.
26. The wall panel of claim 25 wherein the connectors transfer forces between the first and second concrete layers whereby the wall has a substantially composite character.
27. The wall panel of claim 25 wherein the connectors further comprise a centrally located region comprising a premolded, perpendicularly extending lip for locating the connector within the insulation layer, thereby regulating depth of embedment within the concrete layer.
28. The wall panel of claim 25 wherein the connectors are made from a polymer material including fiber reinforcements having thermal conductivity significantly lower than steel.
29. A connector for an insulated concrete wall comprising an elongated wide-body having longitudinally extending portions running the length of the connector between opposite ends, spaced apart and connected by an internal web of thinner or equal thickness and running the length of the connector between opposite ends.

30. The connector of claim 29 further comprising anchoring surfaces adjacent each end, configured such that tension and compression forces are transferred simultaneously through first and second longitudinally extending portions.
31. The connector of claim 29 wherein the connector transfers forces between the first and second concrete layers such that the wall is substantially composite in character.
32. The connector of claim 29 further comprising a centrally located region with a premolded, perpendicularly extending lip for locating the connector within the insulation layer, thereby regulating the depth of embedment within the concrete layer.
33. The connector of claim 29 further comprising a polymer material including fiber reinforcements having thermal conductivity significantly lower than steel, wherein the polymer material is selected from the group comprising fiber-reinforced thermoplastic resin and fiber-reinforced thermoset resin.
34. The connector of claim 29 wherein the opposite first and second anchorage ends are anchored in first and second layers of concrete such that bending, shear, tensile and compressive forces in one of the concrete layers is transferred by the connector to the other of the concrete layers.
35. The wall panel of claim 25, further comprising an anchoring surface formed transversely across the longitudinally extended portions.
36. The connector of claim 29, further comprising an anchoring surface formed transversely across the longitudinally extended portions.
37. A wall panel comprising:
- (a) spaced apart first and second concrete layers;
  - (b) an insulation layer between the concrete layers;

- (c) a plurality of elongated connectors extending through the insulation layer and having opposite ends entirely embedded in the concrete layers, wherein each connector has parallel longitudinally extending portions between opposite ends of the connector, laterally spaced apart and connected by an internal web of thinner or equal thickness extending between opposite ends of the connector; and
- (d) each connector having first and second anchorage surfaces capable of transferring tension and compression forces along and parallel to the longitudinally extended portions.

38. A wall panel comprising:

- (a) spaced apart first and second concrete layers;
- (b) an insulation layer between the concrete layers;
- (c) a plurality of elongated connectors extending through the insulation layer and having opposite ends embedded in the concrete layers, wherein each connector has longitudinally extending portions running the length of the connector, laterally spaced apart, arranged side by side and connected by an internal web of thinner or equal thickness, wherein extends between opposite ends of the connector; and
- (d) each connector having first and second anchorage surfaces capable of transferring tension and compression forces along and parallel to the longitudinally extended portions.



## **Evidence Appendix**

None.

### **Related Proceedings Appendix**

There are no related proceedings.